

REMARKS

In this Response, Applicant provides a new Figure 1, amends the specification to correct a typographical error in a reference number, cancels claims 17-20, and traverses the Examiner's rejections. Support for the amendments can be found throughout the originally filed disclosure. Cancellations of and/or amendments to the claims are not an acquiescence to any of the rejections. Furthermore, silence with regard to any of the Examiner's rejections is not an acquiescence to such rejections. Specifically, silence with regard to Examiner's rejection of a dependent claim, when such claim depends from an independent claim that Applicant considers allowable for reasons provided herein, is not an acquiescence to such rejection of the dependent claim(s), but rather a recognition by Applicant that such previously lodged rejection is moot based on Applicant's remarks and/or amendments relative to the independent claim (that Applicant considers allowable) from which the dependent claim(s) depends. Furthermore, any cancellations of and amendments to the claims are being made solely to expedite prosecution of the instant application. Applicant reserves the option to further prosecute the same or similar claims in the instant or a subsequent application. Upon entry of the Amendment, claims 1-16 are pending in the present application.

The issues of the Office Action are presented below with reference to the Office Action.

Drawings

Applicant is confused as to Examiner's assertion that the diode 36 of Figure 1 "is not shown connected to the circuit." Applicant refers Examiner to Page 7, lines 21-25, where the Applicant states that "[t]he various elements of the power supply system 10 are illustrated in FIG. 1, and are described relative to FIG. 1 *briefly, with the detailed operation and interconnections to be further detailed and understood by the descriptions of FIGs. 2, 3, and 4.*" Nonetheless, because Examiner cannot appreciate the scope within which the previously provided Figure 1 was presented, Applicant presents a new Figure 1. Because one of ordinary skill in the art would recognize that the diode, particularly when viewed with respect to Figures 2-5 and the accompanying description that detail the operation of the Figure 1 circuit for various switch configurations and includes the

operation of the diode in such configurations, *is connected* to the circuit, Applicant requests that Examiner provide further detail regarding Examiner's confusion in this area.

Specification

Applicant presents a new paragraph to correct the typographical error that referred to the control module as element 24, rather than the correct reference of 34.

Claim Rejections 35 U.S.C. §103

Examiner rejects Applicant's independent claim 1 under 35 U.S.C. 103(a) over Pacala (U.S. 4,698,518) in view of Kawamura (U.S. 6,330,258). Applicant respectfully disagrees with Examiner's characterization of Pacala and Kawamura, particularly with respect to the features of Applicant's independent claim 1.

Examiner, page 3 of the referenced Office Action, states with respect to Pacala that "When the power supply has charged the capacitor 12 to a certain level, the switching element 20 triggers, and the keep-up supply 16 provides the rest of the necessary energy to the laser to produce a laser beam." In contrast to Examiner's characterization, Applicant directs Examiner to Pacala, Column 4, lines 44-46, where Pacala states that "[t]he generator 24 periodically opens and closes the switch 20 at the proper repetition rate (e.g., 250 Hz)..." Examiner's characterization of Pacala in this respect is incorrect, and in contrast to the feature of Applicant's claim 1 that includes *a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism...* Examiner then properly states that "Pacala fails to teach a sensor for monitoring voltage across the capacitor and a controller responsive to the voltage across the capacitor for controlling the switching element." (Page 3, Office Action)

Examiner also states, page 3 Office Action, that "Kawamura teaches a sensor and a controller responsive to the sensor." Applicant agrees with Examiner's characterization of Kawamura, however, this is irrelevant to Applicant's claim 1 having a feature that includes *a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism.* Applicant disagrees with Examiner's baseless characterization that an excitation lamp 22 is the equivalent of a capacitor. The capacitor that stores energy in Kawamura is element 30 (see Column 3, lines 40-42: "The laser power supply

unit 12 includes a capacitor 30 for storing electric power for laser oscillation . . ."), and there is no indication anywhere in Kawamura that the excitation lamp stores energy. Although the excitation lamp voltage or current can be measured and provided to the CPU (Col. 4, lines 1-5), such measurement is not *responsive to the voltage across the capacitor 30*, as provided in Applicant's independent claim 1. Accordingly, neither Pacala nor Kawamura, alone or in combination, show the feature of Applicant's independent claim 1 that includes *a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism in switching between the first and second configuration*.

Applicant reminds Examiner that even if Pacala and Kawamura provided all features of Applicant's independent claim 1, Examiner fails to satisfy the *prima facie* showing of obviousness as Examiner does not provide motivation for combining the references. Applicant directs Examiner to *In Re Sang Su Lee*, where Examiner's burden is discussed and where such burden requires more than a mere conclusory statement that "it would have been obvious to one of ordinary skill in the art [to combine references]," as Examiner states on Page 3 of the present Office Action. In particular, Applicant directs Examiner to the following excerpt from *In re Sang Su Lee*:

The need for specificity pervades this authority. See, e.g., In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

Because Examiner fails to provide any motivation to combine Pacala and Kawamura, because Examiner fails to show a probability of successful combination of such references, and because, as stated herein such combination does not include all the

features of Applicant's independent claim 1 that includes *a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism in switching between the first and second configuration*, Applicant traverses Examiner's rejection of Applicant's independent claim 1 based on 35 U.S.C. 103(a).

Applicant thus considers independent claim 1 to be allowable, and also claims 2-8 that depend from independent claim 1 as such claims depend from an allowable base claim. Applicant's failure to respond to rejections of any of such dependent claims is not an acquiescence to Examiner's rejections of such dependent claims, but rather an recognition that Examiner's rejections are now moot based on the above remarks with respect to independent claim 1 which Applicant considers allowable.

Examiner also rejects Applicant's independent claim 9 based on Pacala and Kawamura, without providing any justification for the same. Accordingly, Applicant requests that Examiner review MPEP 707 and 37 CFR 1.104(c)(2) which states: "In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions *other than that claimed by the applicant, the particular part relied upon must be designated as nearly as practicable*. The pertinence of each reference, if not apparent, *must be clearly explained and each rejected claim specified.*" (emphasis added).

Examiner does not provide any justification for rejecting the features of Applicant's independent claim 9 based on the references. In particular, Applicant does not see a method anywhere in either of the stated references that includes features of Applicant's independent claim 9 that include: (1) *determining a driving voltage representing a voltage to charge the capacitor*, (2) *removing the main power supply while the capacitor is less than the driving voltage*, and (3) *disconnecting the inductor from the capacitor when the capacitor voltage equals the driving voltage, while activating a keep-up supply*. Accordingly, Applicant considers independent claim 9 to be allowable, and also, dependent claims 10-16 that depend from independent claim 9. Applicant thus traverses Examiner's rejection of claims 9-16.

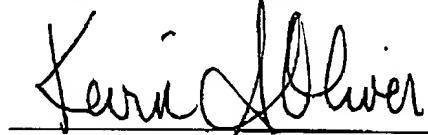
Applicant cancels claims 17-20, without prejudice, thereby mooting Examiner's rejection of claims 17-19.

CONCLUSION

Based on the above Amendment and Remarks, Applicant respectfully submits that this application is in condition for allowance. Accordingly, Applicant requests allowance. If there are any remaining issues or the Examiner believes that a telephone conversation with Applicants' attorney would be helpful in expediting the prosecution of this application, the Examiner is invited to call the undersigned at 617-832-1241.

Respectfully submitted,

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## MARKED-UP VERSION OF SPECIFICATION

In the specification, please amend page 8, line 12 to page 9, line 12 as follows:

The illustrated charging inductor 26 is selected to provide a time constant that allows a capacitor charge time that satisfies, i.e., is less than, the pulse rate of the laser 16. For the illustrated system, for example, the charge time is approximately equal to  $\pi^* \sqrt{L * C}$ . Two resistors, R1 28 and R2 30, are connected in parallel with the capacitor 12 in a commonly known voltage divider configuration. A keep-up power supply 32 is also connected in parallel with the capacitor 12, and in an embodiment, the keep-up power supply 32 is a high voltage power supply, although the invention is not limited by the keep-up power supply 32 specifications, and any similarly functioning element as described herein, may therefore be substituted without departing from the invention. The power supply system 10 also includes a control module 34 that operates S1 20, S2 22, S3 24, and controls the operation of the keep-up power supply 32, and the main power supply 18. The illustrated control module 34 is not microprocessor based, however those skilled in the will recognize that the control processor may be a microprocessor based device, including for example, a personal computer (PC), SUN workstation, laptop or handheld computer including personal digital assistant (PDA), connected through a network or in a stand-alone capacity, and functioning as described herein, without departing from the scope of the invention. As FIG. 1 indicates, the control module [24] 34 and the keep-up power supply 32 measure the voltage drop across R1 28. The remaining element of the power supply system 10 is a diode 36.

## **MARKED-UP VERSION OF CLAIMS**

Please cancel claims 17-20, without prejudice:

17. (Cancel) [A laser system comprising:

- a pulse discharge driven laser;
- a capacitor to deliver energy to the laser; and,
- a keep-up power supply to maintain the charge across the capacitor.]

18. (Cancel) [A laser system according to claim 18, further comprising:

- a input connection to a main power supply;
- an output connection to the capacitor;
- a switching mechanism coupled between the input connection and the output connection, the switching mechanism having a first configuration for coupling the output connection to the main power supply, and a second configuration for decoupling the output connection from the main power supply;
- a sensor for monitoring a characteristic representative of a voltage across the capacitor; and,
- a controller, responsive to the voltage across the capacitor, for controlling the switching mechanism in switching between the first and the second configuration.]

19. (Cancel) [A laser system according to claim 18, wherein the switching mechanism includes an inductor arranged for storing energy when the switching mechanism is in the first configuration, and for delivering energy to the capacitor when the switching mechanism is in the second configuration.]

20. (Cancel) [A laser system according to claim 18, wherein the switching mechanism includes:

    a first switch connected in series between the main power supply and an inductor;

    a second switch connected in series between the inductor and the capacitor; and,

    a third switch connected in parallel to the series combination of the first switch and the inductor. ]